Industrial Finishing

For Users of Fillers, Shellacs, Varnishes, Etc.

MAY, 1925

Kauriol

(A clear wood finish—pyroxylin base)

Kauriol Enamel

(A solid covering wood finish—pyroxylin base)

Kauriol Wood Preparation

(A combined filler, surfacer and stain—pyroxylin base—a scientific undercoat for varnish, lacquer or wax)

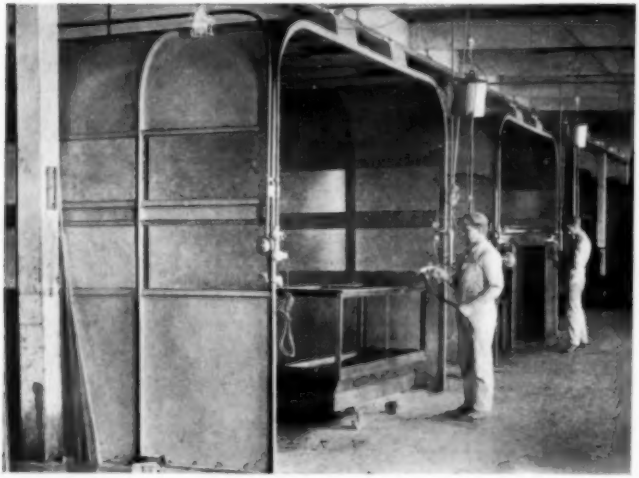
We are prepared to give complete service demonstrations of these materials to any factory

Murphy Varnish Company

NEWARK, N. J. CHICAGO, ILL.
SAN FRANCISCO, CAL. MONTREAL, CAN.

Increasing the Speed— Decreasing the Cost

of Your Finishing Room Operation



HOW practical, how advantageous and how dependable DeVilbiss spray-pointing equipment is, is daily demonstrated in thousands of finishing rooms of every size and line.

The operator of DeVilbiss equipment averages 4 to 5 times faster work than the hand-brusher, applies a more uniform coating, and has cleaner and more healthful working conditions.

How the DeVilbiss equipment and organization will help to solve your finishing problems, gladly explained in detail. Address—

THE DEVILBISS MANUFACTURING CO.
294 Phillips Avenue TOLEDO, OHIO

DeVilbiss
Spray-painting System

MANY SUCCESSFUL FURNITURE
MANUFACTURERS ARE
USING OUR NEW

Shading Stains

Oil Shading Stains that are made to spray or that can be high-lighted with a cloth or brush.

Special Lacquer Filler

MADE TO USE UNDER LACQUER

Our Fillers are recommended by practically all leading lacquer manufacturers.

Samples sent on request.

Lindeman Wood-Finish Co.

Main Office and Factory, Indianapolis, Ind.

Warehouses and Branch Offices, Grand Rapids, Mich., and High Point, N. C.

The New Finish— a Good Salesman

SCINTILLATING, glinting, its effect like many jewels—who can resist the urge to look and admire!

Hilo Crystallizing Lacquer is brushed or sprayed on—like varnish. Natural effects of wood, metals, fibre, glass, paper, plaster, etc., also colors, printing, decal transfers, stencilled designs, all show thru the clear crystallizing lacquer.

Hilo Crystallizing Lacquer can be put over any other finish—stain, varnish, shellac, enamel, lacquer.

Hilo Crystallizing Lacquer needs less undercoat preparation than smooth finishes because the crystals hide minor imperfections in the surface.

Send for a working sample and Bulletin 8. You will want to see this finish right on your product.

HILO VARNISH CORPORATION
(Moller & Schumann Co.)
11 Gerry St., Brooklyn
Philadelphia Boston Chicago

HILO
Industrial Finishes *for* Every Purpose

Industrial Finishing

For Users of Fillers, Shellacs, Varnishes, Etc.

Published Monthly by
Practical Publications, Inc., 210 Holliday Bldg., Indianapolis, Ind.

Western Representative
Friedman & Peck
431 S. Dearborn St., Chicago
Phone: Harrison 2698, 2699

Eastern Representative
C. A. Larson
154 Nassau St., New York
Phone: Beekman 3471

CONTENTS FOR MAY, 1925

With the Editor 5
Finishing Room Production, by Robt. L. Kent 7
Lacquer As An Automobile Finish 9
Decorative Colors and Designs for Furniture, by Von Lindau 10
Matching Mis-Matched Veneers for Finish, by V. L. Benton 12
Modern Spraying Practice—II, by R. L. Masterson 13
Rubbing Lacquer Finish, by C. F. Merrifield 16
Why Stain Powders Appear To Change in Strength, by T. C. Chantley 18
A Repair "Filler" That Hardens, by Henry Schubert 18
Period Finishes—Queen Anne, by R. J. Meade 19
Handling Gold Leaf, by C. B. A. 20
Overhead Carriers In Paint and Finish Rooms, by R. J. Waldo 21
Finish for Insides of Drawers, by L. J. B. 27
Editorial 28
Better Quality—Better Appearance.
Volume of Production in Paints and Finishes.
Exposition of Chemical Industries.
Reducing Primers for Dipping Process 30
Effects of Temperature, by Amums 30
Breakfast Room Furniture Finishes, by R. F. Macmillan 31
Characteristics of Good Varnish, by Ash 32
Finishing Kiddie Cars, by C. L. Ravenmoss 32
A Venetian Finish, by C. R. Wills 35
Poisonous Air Eliminated, by R. J. W. 35
Staining a Patch to Match, by Harry B. Girth 36
Pitting on Piano Varnish, by J. A. Pitner 36
Questions and Answers 39
Applying Aluminum Powder, by R. S. M. 39
Removing Baked Enamel, by M. B. Co. 39
A Problem in Furniture Frame Finishing, by S. F. Co. 39
Questions About Shellac, by C. P. 39
Removes Printed Marks, by Reed Mfg. Co. 43
Using Varnish Remover, by J. K. Cooper 43
Finish for Ice Boxes, by I. L. I. and Robt. Rauh, Inc. 43
Finish for Tumbling Process, by Republic Varnish Co. 44
Painting Machines, by Roy L. Knall 44
Old Air Hose Causes Trouble 45
Made a Big Saving in Lacquer Room, by J. K. Cooper 46
Shellacing Foundry Patterns, by W. H. R. 46
Colors for Refrigerator Cars 46

Copyright, 1925

give us a chance to prove this!

Don-O-Lac, which is a superior shellac substitute, will mix perfectly with any wood finishing lacquer.

It will mix without curdling.

It is also an excellent builder.

These and other features, coupled with price economy, make this an ideal material for your operations.

To prove this, we will send a 5-gallon sample at the barrel price.

Send in your order now.

DON-O-LAC COMPANY
ROCHESTER, N. Y.

With the Editor

THE situation that has prevailed for some months and which still prevails with regard to the manufacture and sales of many industrial products throughout the U. S., is summed up very clearly in a recent statement coming from the Department of Manufacture, U. S. Chamber of Commerce. E. W. McCullough, manager of the department, stated "that at the present time the producers of the country are faced in many lines with what is commonly called a 'buyer's market'—that is, the demand apparently does not exceed the possibilities of supply and the buyer naturally is exerting pressure for lower prices and better selling terms.

"In such situations competition forces a search for waste and means for greater efficiency in production, as well as stimulated sales efforts. This is simply another way of describing the evolution which is all the time going on in eliminating the obsolete and inefficient.

"As production in all lines is controlled to a very great extent by the human element—the workmen—it is but natural that the employer should in such times review his industrial relations and see where they can be improved, to the end that he may not only get continuous production but more of it without increasing his outlay. Naturally, the appeal must be made on a basis which will have the interests of both the employer and the employee in mind in order that it may succeed and have continuity."

The above applies particularly in the paint and finishing departments of industrial establishments. In this, the final phase of the manufacturing process, a great deal of waste or a great deal of saving may occur, depending upon the materials used, the methods and equipment employed, the technical and practical knowledge available, and last but not least the personnel of the crew. Knowledge of what materials to use and how to use them is most important of all and to this end it is the aim of INDUSTRIAL FINISHING to extend a substantial aid to every industrial user of paints and finishes. It is also the editorial policy of INDUSTRIAL FINISHING to stimulate increased interest in modern finishing methods, equipment, materials and problems. The application of new practical ideas and advanced authentic information will serve very materially toward bringing about a higher quality of workmanship and toward producing it at less cost and with less spoilage of the finished goods.

IMPROVED O'SHELAC

No offensive odor

Not injurious to workmen's health.

Does not affect fire insurance rates.

Just as tough, durable and waterproof as high priced lacquers—*at one-half the cost.*

No special stains or fillers required for this finish.

It has been on the market for years and is not an experiment.

Contains no shellac gum.

Write us for sample

ADVANCE PAINT COMPANY

Manufacturers of

VARNISHES AND WOOD FINISHING MATERIALS

Factories—INDIANAPOLIS and EVANSVILLE, INDIANA

Finishing Room Production

Calling attention to a number of matters of importance in finishing room production, and explaining how certain substantial savings may be effected in the application of finish coats

By Robt. L. Kent

IN laying out production schedules, very often too little attention is paid to speeding up work in the finishing room, although right here is where time is frequently lost through inefficient routing of work, lack of planning and faulty inter-departmental cooperation. Costs in the finishing room are worth considering, especially in view of the fact that material savings can be made in time, labor and money, with all that this means in economical production and in turning out finished products which are a credit to the manufacturer.

Importance of Surfacing.

It is in proper surfacing that much expense, through trouble developing in varnishing, can be eliminated. The finisher's job can be made considerably easier and it can be much simplified if the surfacing and sanding are carefully done before the product reaches the finishing room. Before surfacing, of course, care must be exercised so that there is no chance that the filler is not absolutely dry. It is far better to make haste slowly at this stage of the finishing process no matter how great the apparent need for speeding up production.

In this connection the vice-president of a well-known varnish manufacturing concern, in a letter to the writer, says: "If the cabinet work is properly surfaced and sanded before it reaches the finishing room, then the finisher's job is comparatively easy work; he does not require sanding between his varnish coats because his surfacing has been done in the proper place before the goods reached the finishing room.

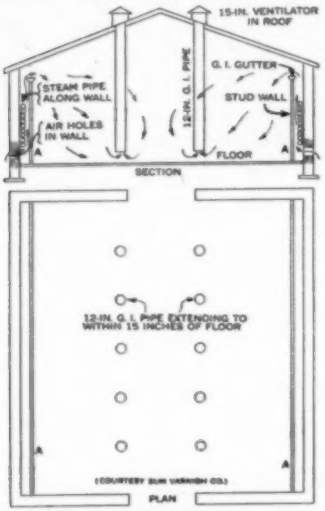
"Those manufacturers who do quality work realize that it is not necessary to surface between coats when the cabinet work is properly surfaced in the first place. When this is done all that is required is rubbing after the final coat, and with some types of varnish even this part of the finishing operation may be dispensed with. This method is in use by many large manufacturers of phonograph and radio cabinets, and makers of other products of a similar nature where speed of production is absolutely necessary.

Spray Equipment and Operation.

Economy in finishing is not only a matter of saving time, but of equally great importance is the quality of the work turned out. After all, the manufacturer depends upon the sale of the finished product for his success. Imperfect work from the standpoint of appearance means loss of reputation and a consequent drop in distribution to the trade. The retail distributor, of course, will not merchandise a line of products if he realizes they are below par and may mean loss of patron-

age and dissatisfaction on the part of the ultimate consumer.

No manufacturer can long continue to operate on a profitable basis if the appearance of his product does not compare favorably with that of competing firms. It is because of these facts that the proper spraying equipment is assuming such importance in the



Elevation and plan of typical varnish-drying room. Letters A A mark 2x4-in. stud wall to extend to within 2-ft. from roof and to be lined with sheet metal or asbestos.

Note: For every 10,000-cu. ft. of room area, provide equivalent area of 5½-sq. ft. ventilator ducts, equally distributed, and 10-sq. ft. of openings in walls, and 1,200-sq. ft. of radiation for low pressure steam or 715-sq. ft. of radiation for 80-lbs. steam.

minds of progressive manufacturers. There are various types and sizes of spraying equipment designed to meet all requirements. The manufacturer should exercise care in installing the type of spraying equipment best suited to his needs. This insures economy of operation and satisfactory work, everything else being equal.

Also, there is a right and a wrong way to use spraying equipment, and less trouble will be experienced where men have been thoroughly trained not only in the use but in the care of the apparatus. The proper adjustment of the nozzle, the right distance for the spray gun to be held from the work, the proper air pressure for each particular varnish, and the amount of varnish necessary to do a first-class job—these are all problems which are worth consideration and they are vital to the success of this part of the finishing process.

The Drying Room.

One of the most essential things in volume production with varnish (oil varnishes) is to have a properly conditioned drying room. It is in the quick drying of varnished products where much time can be saved, and this is absolutely impossible unless provisions are made to bring about the desired result. Varnish dried under unfavorable conditions very often means an unsatisfactory finish. About 110-deg. F. with from 44 to 45 percent humidity, and the proper provision for a change of air in the drying room, will speed up production. In some manufacturing plants there is a lack of suitable facilities for conditioning a drying room, and where this is the case it is to the advantage of the manufacturer to spend a little money to get the right kind of room.

The drying of varnish is an oxidizing process, consequently it requires pure air. Where no adequate provision for a change of air in the drying room is made, trouble will be experienced. The air in the room will become

charged with the volatile matter contained in the varnish, and as a consequence the air becomes impure and the amount of oxygen is very much decreased.

In many plants faults in finish have been traced directly to faulty drying-room conditions, and when these were finally eliminated no further trouble was experienced. Non-drying of the film thus causing sweating after rubbing and also causing pull-outs or case-hardening, and sinking of the finish—these are a few of the troubles brought about because of inadequate drying conditions.

Of course, there is a limit to the time in which a product can be varnished, dried and recoated, but the point is that too often much time is wasted which could be conserved under more efficient working conditions. Where the finishers have at their disposal the best of material and equipment, there is no excuse for waste of time with all that this means in increasing the overhead of the finishing department. In fact it is to the interest of the foreman of this department that the various operations under his control are all performed economically and satisfactorily.

Lacquer As An Automobile Finish.

At the meeting of the American Chemical Society held last month at Baltimore, Md., Mr. Mullins, the head finisher of the Buick Automobile Co., stated that since August, 1924, all Buick cars had been finished with lacquer and that he believed in two years varnish finishes would be practically done away with in automobile finishing. The two great arguments are economy and durability. It used to take ten to fifteen days to finish a car; now it takes three.

All metal bodies should first be sand-blasted to remove all dirt, oil, etc., then a priming coat of color (we use red oxide) in a little oil. This must be sanded with fine paper and a finish coat added and then three more coats of pigmented lacquer. Skill in the use of the spray gun must be acquired. Ninety to 100 lbs. pressure should be used and a fairly high viscosity lacquer, and the nozzle of the gun should be held close to the surface to be covered.

After the last coat of lacquer has been applied, sand the car with fine sandpaper and then spray it with solvent.

Two years ago we had no room for the automobile bodies awaiting painting. We had 5,000 bodies out in the field that we couldn't get into our store room. Now we have three floors empty and are all caught up. We had 875 painters and now we have 300, and we produce just as many cars as before. The saving amounts to well over a millon dollars for the Buick company.

* * *

Mr. McKim, of the New Jersey Zinc Co., spoke of the action of pigments toward nitrocellulose and of humidity temperature and the ultraviolet ray. He said lacquer was not affected by humidity, but was subject to changes from temperature and aiso by the ultraviolet ray which pigments either transmit or absorb. He cited the effect of plasticizers and named diethyl, phthaleate, dibutyl phthaleate, ethyl oxaiate, acetoacetate, ethyl latetate, etc.

Decorative Colors and Designs for Furniture

A talented and tasteful decorator-finisher artist calls attention to some of the possibilities of decorative designs and blended colors for the ornamentation and finishing of fine furniture

By Von Lindau

DECORATED furniture is still in baby shoes. In the furniture line it is the baby we love the most, but it gives us the most sorrow. A score and more of beautiful colors are in the market—colors to suit taste and sometimes complexion. But in the space of time you will get tired of all these colors. The warmest colors will look cold and stale to you.

Now, take any one of the colors which we think is out of date because we are tired of it, and see what a skillfully applied blended stippling will do. We are surprised how wonderful this color has improved. The eye will rest on it with everlasting favor.

A rocker that shows painted decoration on front rail and back.

The possibilities of this blending process are unlimited. For instance, we take one color, say, pearl gray, and blend it with a dark olive green, or burnt sienna, or medium chrome green, or burnt umber, or dark purple, or a dozen other shades which suits the purpose. We have now at least five different shades in gray which are wonderful in appearance if the blending has been skillfully done.

We select one of the five shades, say for example, the one stippled with olive green. Now we are ready for the trimming. We take the olive green and make it about four shades darker to the gray, not to the green; our color is gray. We stripe the edges and some parts of the wood turning. Gold striping does wonderful in straight stripes applied after the decorating is on. No heavy gold stripe, but sharp, fine, hair-line stripes and plain, clean corners along the trimming—this gives the whole an aristocratic appearance.

After the drying process we apply a coat of shellac, and take it to the artist. Here we stop a little while and give this important man "the once-over." What kind of an artist is he? A good, old, every-day artist who does his work fairly well as long as there is a pay day in the week, and someone supplies the idea?

Or is he a loud, all-knowing, would-be artist who tries to copy everything and never shows the shadow of anything? Or is he the artist the public looks up to; the artist with a soul, and one who knows his brushes and his paints; a lover of art and nature? He will make good.

Most of the decorations on furniture are roses, chrysanthemums, and flowers you see every

Artistic decoration on hinged top of center table.

day in any flower store on the street. What is the matter with their little sisters on the wayside? Mothers and sisters are bringing armfuls in from the country, arranging them in beautiful bouquets and placing them in a decorative way around the rooms. Let us have some of this decorating on our furniture.

A little silhouetted sunny landscape, set off with a few little wild flowers in natural colors, but with a tint harmonizing with the entire surface of the furniture—this makes a real artistic bit of work. A bug, a butterfly, or a little bird will add to the cheerful life-like appearance, if applied in natural colors. A black-outlining with a gold edge is never a decoration.

The decorating must be applied smoothly—not a heavy piled-up paint; not a big all-covering design. A delicate, transparent design, it shall be, which will not disturb the beauty of the finish. The design must be well in proportion to the surface. You cannot use the corner design of the top on the corner of a little drawer, but by all means keep the same subject of the design throughout the entire suite of furniture. The design must be plain, delicate and graceful.

No one should be forced to guess what a decoration represents. A recollection typical of the day: We stopped at the furniture house to see what was in the market. A decorated piece of furniture called our attention. I say "called," as a dozen or more wonderful colors had been applied, every one in the wrong place. Something very large, very green, very shapeless stood out. Someone said it is a lost leaf, but we think it is a lost wardrobe hook. Well, dear painter of the wardrobe hook, take our advice; sell your brushes and learn how to cook, and thus save two artists from starvation —your successor and yourself.

One hundred per cent. more decorated furniture will be sold when the decorating applied, is in reality a decoration. This can be done in a very satisfactory way by encouraging the proper talent, and discharging the improper.

Matching Mis-Matched Veneers for Finish.

Almost every finisher of high-grade plywood furniture and pianos gets matched veneers which do not quite match in figure. This is not always the fault of the matcher; more often it is because part of some of the figure has been cut away in cleaning up the wood for the finish.

These figures can be made to match perfectly by the finisher. Usually there are dark streaks that end abruptly at the joint in the veneer. The way to overcome this difficulty is to have dark stains of various depths of color, and a fine pencil brush. Keep these stains in small bottles, like ink bottles, and have each one numbered according to its strength, and identified according to whether it is water stain, oil stain, or spirit stain, and whether it is for walnut or mahogany.

The best time to do the work of making the figures match is, as soon as possible after the regular coat of stain has been applied and is dry. If the matching is done before the main staining operation, it will likely be lifted and carried away by the stain. Also, at this time, one can more clearly see just how much color is required to make a perfect match, and a water stain can be used.

To proceed with the work, take the pencil brush and, with the stain which you think is best suited to give the proper depth of color, start at the joint where a figure ends abruptly and carry the figure over on the other piece of veneer in exact imitation of the natural one. A little practice will enable anyone who has any artistic ability to do this to perfection.

The kind of stains used have an important bearing on the results to be obtained. Usually a real dark water stain will do the trick. Sometimes it may be necessary to use a spirit stain in a walnut or mahogany color; or it may be necessary to use a black stain. If a black stain is necessary, use spirit soluble nigrosine. With the black stain, the depth of color required can be obtained by regulating the amount of stain applied.

If some of the stock has advanced to the point where it has been filled and shellacked, either a spirit, or an oil stain will be necessary to produce good results, as water stain will not take, over finishing material. A quick-drying oil stain can be made by dissolving oil black in turpentine, and adding to it a quantity of brown japan. Or it can be made by dissolving the oil black in a mixture of turpentine and brown japan. A darker solution can be obtained by the latter method. Heat will facilitate solution, but one must be careful and not heat it over a fire. Use a hot water bath. Put the mixture in a small vessel, and put this vessel in a larger one containing water the temperature of which is near the boiling point. Stirring occasionally will help the work along.—V. L. Benton.

Pennsylvania's Paint Law.

The new pure paint bill, replacing the act of 1915, was signed by Governor Pinchot of Pennsylvania to become effective June 1. It establishes certain practice as unlawful and defines paints and naval stores, there being nine classifications under the latter. The standards are to be promulgated by the secretary of agriculture. The act requires true statements on labels, together with data on net weight and contents. Broad powers of inspection are conferred.

Modern Spraying Practice—II

The concluding installment of a two-part article wherein the author directs attention to many important and interesting facts regarding the spray system of applying paints and various finishing materials

By R. L. Masterson

CLEANLINESS is one of the essentials for good work by spraying. This refers not only to the condition of the work itself but also to the spraying equipment, the containers, the material, and the air in the lines. Absolutely all oil, water and dust should be removed from the spray line, not only for fear of unclean work but also because these materials cause pitting, blushing non-drying and many other faults. Especially is this precaution necessary where the lacquers are sprayed, since oil and water are enemies to nitro-cellulose, and will spoil the best of lacquer finishes if present in the air.

A simple separator for removing dust, oil and water may be made from a 3-ft. length of 4-in. iron pipe, by putting an air tight cap on each end and filling with loose excelsior which breaks up the flow of air. The air inlet should be near the bottom of the separator and the outlet near the top so the air has to pass from bottom to top through the excelsior. A pet cock drain should be at the bottom so any accumulated moisture and oil can be drained off. A fine mesh screen should be placed over the air outlet to prevent any particles of excelsior being carried into the spray line. The excelsior should be renewed whenever there is an indication that all of the oil and moisture is not being removed from the air.

Some people make the mistake of overloading the air compressor. This causes more oil than usual to pass the rings in the cylinder and it gives very much trouble. Sometimes the mistake is also made of setting the compressor in the sanding room or elsewhere, so that a great deal of dust is sucked into the compressor with the air.

The spray equipment should be cleaned thoroughly each day. The proper time to do this is before quitting at night, rather than the next morning after the material on the gun is dry. The gun should be taken apart and thoroughly cleaned with the proper solvent for the material being used. The containers and the fluid hose also should be cleaned out thoroughly at the same time. When a metal-lined material hose is used—and these are the best, especially for lacquer—it is not necessary to clean out the hose each night so long as the hose is left full of the material.

A special man should be given the job of keeping the equipment clean, or else actual production should be stopped fifteen minutes or so before quitting time to allow the spray men time to clean up their equipment thoroughly.

The work should be carefully dusted before application of a coat. It is sometimes advisable to make a special cleaning tool by removing the handle from an ordinary duster and connecting an air hose instead, so the com-

bined action of a duster and compressed air can be had.

The booth should be carefully cleaned at intervals. This task can be made easy by lining the booth with strong paper. Either a light wooden frame, to which the paper can be tacked, should be construed inside the booth or else the paper can be stuck on with heavy grease. When the paper is dirty it can be removed and burned, and fresh paper substituted.

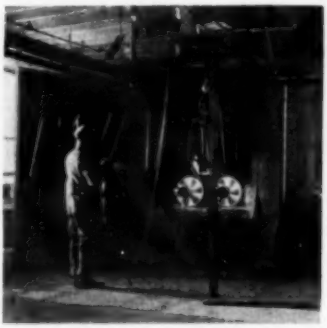
A suitable means of exhaust should be used. The fan blades should be cleaned periodically to assure a good suction. There are now obtainable booths in which the fan blades do not come in direct contact with the finishing material fumes. They operate on the principle of blowing a strong draft of air past an opening in the back of the booth, thus creating a suction which carries off the fumes. This eliminates the necessity of cleaning the fan.

There has been considerable controversy regarding the wisdom of using heaters for heating the finishing materials before they reach the spray gun. For certain heavy-bodied goods, no doubt this gives better flowing qualities, but there is danger of the formation of skins, or in other ways affecting the finished results. It is now possible to obtain practically every type of finish material which will flow and level out properly without the necessity of heating. Lacquer materials should never be put through a heater.

Where it is thought advisable to heat the material before applying it, suitable means should also be provided for heating the air. Otherwise the material will be cooled down again within a few inches after it has left the nozzle, and the results will not be satisfactory.

It is advisable in most cases to sand the work lightly between coats, so as to remove any dirt nibs or uneven places which will only be accentuated by applying other coats over them.

Materials that give good results by brushing can often be made to work satisfactorily by spraying, provided the proper adjustment of nozzle, pressure and reduction is found. It is better and safer, however, to consult with a reputable manufacturer of finishing materials who has made a study of the subject and who can offer materials especially adapted for the spray.



Spraying wood parts which hang from crossarm suspended by trolley from overhead track.

A paint or varnish material, that sets up rapidly and fails to flow out, can sometimes be made to flow by raising the air pressure. In other cases it may be necessary to change the kind of reducer used or even get a new paint or varnish. It is well to remember that a coating which levels out perfectly under all conditions, is usually thinner in body or slower in drying than one which does not flow so well.

Rough stuff, sanding surfacer, iron filler, wood filler, and similar heavy-pigmented materials should be sprayed with a wide nozzle opening and with rather low air pressure. If the pressure is too high, the material may hit the surface in a semi-dry condition which causes much of it to be blown off the work in powder form and gives a powdery, porous surface when sanded or rubbed.

Japan color or ground color should be sprayed very carefully with the air pressure and material feed properly adjusted to prevent pebbling, as very little sanding is permissible on these coats. It is advisable to use a material that is recommended for spraying by the maker.

Color varnish and enamels require very careful application also. It is necessary that they be properly constructed for spraying and that the type of gun, air pressure, etc., be very carefully chosen. There are now on the market, spray guns which use very low pressure and which are designed especially for applying color varnishes and similar coatings where the pebbling or orange peel effect must be kept down to a minimum.

Stains, whether of the water, oil or spirit type, can be applied by spraying if very low pressures and very small nozzles are used, so that an excess of material will not be discharged.

Standard cuts of shellac and shellac substitutes are usually reduced for application by spraying. The pressure should be lower than for the average varnish material. Also a smaller nozzle should be used and the flow of material to the nozzle cut down somewhat, as there is danger of flooding the work, especially if the gun is held too close.

There are several things to watch closely in spraying nitrocellulose lacquer materials, whether clear or colored. In general, the air pressure should be considerably lower than that used for paint or varnish materials. Only enough air should be used to split or atomize the material properly. An excess of air will evaporate the volatile materials to such an extent that there is likely to be considerable overspray or dried powder collect on the work. The gun should also be held closer to the work than for paint and varnish materials, for the same reason. The air line must be absolutely free from water and oil, for if either are present in the application of lacquer, the work will be spotted white. A full, wet coat is the secret of good results with lacquer. There is very little danger of any running or sagging, as is the case with paint or varnish materials, which dry more slowly.

Black baking japans and similar materials, which are usually applied by dipping, do not work very well for spraying unless constructed especially for spraying, because of the danger of reflowing and forming sags, after the work has been coated. Baking japans especially designed for spraying can be had from reputable and well-established varnish manufacturers.

While all of the foregoing are good points to keep in mind when applying finishing materials by the spray system, it should be remembered that the skill and experience of the operator has as much or more to do with satisfactory results.

Rubbing Lacquer Finish

Revealing many causes of unsatisfactory results in rubbing lacquer, why lacquer sometimes peels off, and how wood and metal surfaces should be prepared for lacquer

By C. F. Merrifield

LACQUER is frequently abused in the rubbing process. Rubbing is nothing more nor less than the process of putting millions of scratches in the surface, as can be seen by looking at a rubbed surface under a magnifying glass. Now the lacquer film is very similar to a sheet of celluloid and if these scratches are too coarse, or if they are applied without the use of sufficient lubricant, the film will be left with a slight grayish cast.

If the lacquer is rubbed before it is sufficiently dry, the scratches will be more pronounced, and it will be more difficult to thoroughly clean off the rubbing liquid. The result is that sometimes a haze comes over the work the next day after rubbing. This appearance is due either to excessive scratching showing up, or a film of greasy material left by the evaporation of the rubbing oil. Some people are using specially "deblumed" rubbing oil to prevent this from happening;

The rubbing room in a furniture factory where several portable, air-operated machines are used. Moisture and sediment traps are located in air line where connections are made through hose to machines. A large stroke rubbing machine, for use on furniture tops, is located far in background.

others are cleaning up with a little wax after rubbing.

If the lacquer is thoroughly dry, if the right abrasive and the right rubbing liquid are used in the proper proportions, and if not too much pressure is used, and if the work is thoroughly cleaned up after rubbing, this grayish over-cast will not appear. Whenever it does appear it is not in the lacquer film itself but is a surface condition, unless it is a milky white, in which case it is due to blushing.

The portable air rubber is easily handled.

Lacquer is sometimes criticised for peeling from the surfaces to which it has been applied. Many times this is found to be the result of hasty judgment. All of the solvents do not leave a lacquer film for several days and if a knife is deliberately inserted under a lacquer film the same day it has been applied or shortly thereafter, it frequently can be pulled from the work. The same surfaces, when allowed to stand another day or two, cannot be peeled at all.

It sometimes does happen, however, that even after several days lacquer may be peeled off. In such cases the fault is to be found in the surface over which the lacquer was applied. Oil, grease, wax, or similar materials will not allow lacquer to stick. If the metal is not thoroughly clean, or if the film on wood is not dry or if it contains any mineral oils, lacquer will not stick as it should. When the surface is clean and dry, however, peeling troubles will not occur, after most of the solvents have evaporated from the work.

Something should be said here also regarding the importance of careful preparation of the surface over which lacquer is to be applied. Lacquer naturally seeks the depressions, but it does not flow into them and fill them in the same way that varnish would, due to the quick-drying nature of lacquer. Therefore, it is very important to have the surface as smooth as possible before finishing operations are started.

On cabinet work, plenty of sanding should be done to level the surface as much as possible. On metal work, the file marks, scratches and other defects should be as nearly eliminated as the nature of the work will allow. Time spent in good surfacing of cabinet and metal work will be money saved in the number of lacquer coats used and in the expense of rubbing these coats. Furthermore, the less rubbing required on the last coat, the more the film will be unbroken and the more durable will be the finish.

In conclusion, when a properly-manufactured lacquer is used under the proper conditions and over the right surface, very little trouble will occur. At least 90 per cent. of all lacquer troubles can be traced to improper conditions, to improper application, to improper handling after applica-

tion, or to a combination of these causes. All of this, of course, is with the understanding that the proper type of lacquer for the work in hand is being used.

Why Stain Powders Appear To Change In Strength.

One thing not generally known by finishers, but of great importance in making up color, or stain formulas, is the fact that certain stain powders have a great affinity for moisture. As an illustration, take a can of carbonate of potash; when first opened it is dry and hard, sometimes like common salt, but leave the can open for a time and it will liquify. Sometimes the contents of the can will take up so much moisture that it will overflow.

The opposite is true of sulphate of iron. When first exposed to the air sulphate of iron, in its crystalline form, contains a considerable amount of moisture. In color it is bright green with a glass-like appearance. After it is exposed to the air for a time the surface becomes gray. The air carries away the moisture and converts the surface of the crystals into a grayish powder. If one were to weigh a quantity of sulphate of iron immediately on opening the can, and then weigh it after it had been exposed to the air for a time, he would find the weight much less than it was at first.

When making up formulas one must have uniform chemicals and colors in order to obtain uniform results. Suppose we weigh a pound of sulphate of iron immediately after opening a can, and leave the remainder exposed to the air. If, after the lapse of considerable time, we weigh out another pound we will have less moisture but more of the chemical than we had in the first pound. This means we would not obtain the same result from the last pound that we did from the first.

The same is true of all color materials, whether they are chemicals, extracts of vegetables or anilines. This accounts for stain powders apparently becoming stronger or weaker with age. However, the colors do not change their strength. What they really do is to change their weight by either taking on or releasing moisture. To overcome this difficulty stain powders should be kept in air-tight containers. If this is done there will be no trouble arising from an apparent change in their strength.—T. C. Chantley.

A Repair "Filler" That Hardens.

The filler, of which a formula is given herewith, is for repair purposes principally. It is useful for filling cracks, small holes, etc., to bring the damaged or defective place up even with the surrounding surface. One of its principal ingredients is casein which is now used so extensively in many commercial products. Casein, as you probably know, is a creamery by-product—the dry curd of cows' milk. Casein glues are waterproof, and so is the filler made according to the following formula:

Commercial cottage cheese (dry)	45%
Commercial air-slacked lime (powdered)	45%
Commercial Paris white whiting	10%

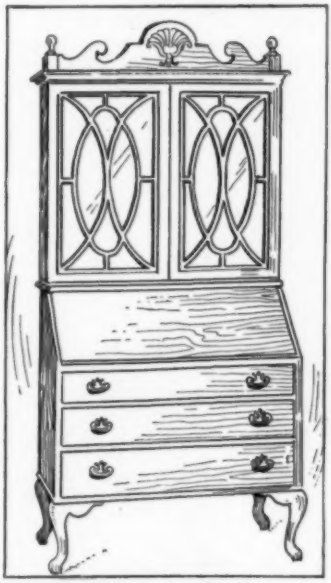
Add sufficient water to a thorough mixture of the above ingredients to make a paste, and apply with putty knife. Colors can be incorporated in this mixture to obtain any shade desired. —Henry Schubert.

Period Finishes—Queen Anne

With the Queen Anne style so popular for all kinds of fine furniture, it is important that its true characteristic finishes be known and that finishers understand how to obtain them on woods in use today

By R. J. Meade

UP to this period, which began in 1702 and closed in 1750, English furniture had been sturdy and massive in construction, severely straight in design and dependent for ornamentation on flat and relief carvings or simple turnings. The reign of Queen Anne was revolutionary in that it brought forth a new line of beauty based on the peculiar but artistic curving cabriole leg, and the claw and ball foot. An added touch was provided by mounting a shell ornament on the knee, and the breadth and depth of chairs and settees was increased to allow for the wide feminine costumes of the day.



Typical Queen Anne Secretary.

Queen Anne style represents a survival of the Dutch influence in English cabinet making initiated in the previous reign of William and Mary. The cabriole leg, for instance, came to England by way of Holland where Dutch traders had popularized it following trips to the orient. To the Chinese it was an age old symbol—the dragon of ambition clutching the mystic jewel of knowledge.

Few period styles have enjoyed in America a popularity equal to that of the Queen Anne. Other styles may have their day but the cabriole leg is seen year in and year out not only on staple furniture for dining rooms, sleeping rooms and living rooms, but on phonograph and radio cabinets, ferneries and special pieces of every sort. In the 18th century, as now, the favored woods were walnut and mahogany, the latter only just coming into wide use due to the lowering of a hitherto prohibitive tariff barrier.

The modern walnut finish calls for uniforming sap streaks with a toner made from a weak ammonia solution, or an ounce of walnut crystals dissolved in a gallon of hot water. This serves

to bring up the color and when dry the wood is sanded smooth; on cheaper and medium-priced work sap staining and sanding are followed by a coat of standard American Walnut oil stain. When this has dried a coat of shellac and two coats of pale rubbing and polishing varnish are applied and usually rubbed dull.

Of late there has been a tendency to get away from stock stain colors for Queen Anne furniture, in favor of something that is different from the other fellow's finish. The oil stain may be lightened by cutting down the strength with naphtha, but the most beautiful original effects are obtained with water stain. Following are some of these mixtures which may be varied in proportions at will; the filler, too, may be varied from light to standard or grayish-brown walnut.

To 3 gallons hot water add 1½-oz. standard brown mahogany aniline, ½-oz. jet nigrosene crystals and ½-oz. of lemon-yellow. To 5 gallons of hot water add 3-oz. standard brown mahogany aniline, ¾-oz. of sal-soda, 3-oz. jet nigrosene crystals and 4½-oz. walnut crystals. To 2 gallons hot water add 1½-oz. standard brown mahogany aniline, 1½-oz. jet nigrosene crystals and one pint denatured alcohol. To one gallon hot water add 1½-oz. walnut crystals and ½-oz. standard brown mahogany aniline.

On mahogany the protective finish is the same as for walnut and on the cheaper suites a mahogany oil stain may also be used, preferably in a brown shade as the red is subject to fading. For the former a reddish filler is employed, and with the brown stain as well, unless the deep shade is required obtainable with a blackish-brown filler.

A few water stain formulas are as follows: To one gallon hot water add 2-oz. standard red and 4-oz. standard brown mahogany aniline, or 4 to 6-oz. Adam Brown mahogany dry stain, standard shade. To 5 gallons hot water add 6-oz. blue-black ebony powder and 4-oz. orange-yellow aniline powder. To one gallon water add 1-oz. standard red mahogany dry stain, 3-oz. brown and ½-oz. each lemon-yellow powder and jet nigrosene crystals.

Queen Anne carries no inlay work, highlighting, shading, polychroming or antiquing. It depends for its beauty entirely on the veneers and stain coloring, and on beauty of line.

Handling Gold Leaf.

The old way of handling gold leaf was to take a camel hair brush and "magnetize" the hair by brushing the tips briskly over the hand, or arm. When magnetized in this way the hair will pick up the gold leaf, and the workman can place it where he desires.

The new way is to use a sheet of waxed paper cut to a size a little larger than the piece of gold leaf to be moved. Place this piece of paper over the sheet of gold leaf and rub it with the hand. The gold leaf will adhere to the waxed paper and can be conveyed in this way to the desired position. Thin waxed paper is quite transparent, which is a valuable feature because it enables one to see just where he is placing the gold leaf. When the gold leaf is placed on the size, rub the back of the paper with one hand while holding it with

the other. When the gold has been firmly pressed on to the size, lift the waxed paper, and the trick is done. This method has proven superior to any other method known.—C. B. A.

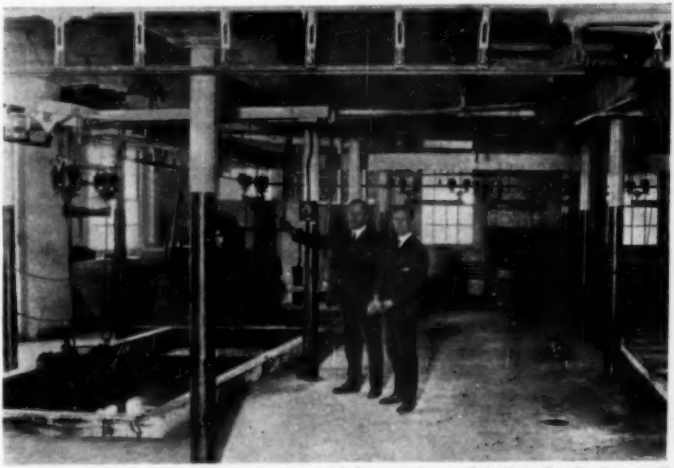
Overhead Carriers In Paint and Finish Rooms.

The increased cost of labor and the constant pressure for greater output has stimulated search for methods of production which would permit manufacturers to produce more with less labor. One of the most effective means of accomplishing this objective is through the use of a carrier system for conveying materials in process from one operation to another. This system lends itself ideally to the painting departments of modern industry.

First of all, the overhead carrier system reduces labor cost by accomplishing more work with fewer workers. It eliminates the necessity of trucking. In the painting process the pieces to be coated are hung from a carrier and the holder is lowered into the vat of paint. After the coated material has drained it is moved on by carrier into the drying room. When the pieces are dry, they are taken to the store room before the bins, and there handled individually for the first time since having been loaded on the carrier. Thus the carrier saves a great deal of handling and trucking of material in process.

In this system the carriers move forward progressively. Through the elimination of trucking this system also decreases the wear on the floors. The system is adaptable to handling articles of all sizes and shapes, it being an easy task to design and make a hook, or clasp, or wire container for conveying them about the plant.

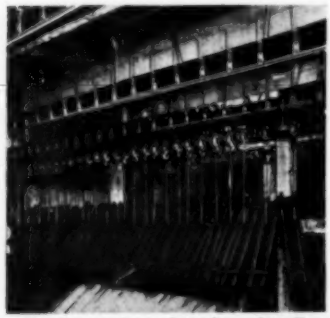
The little trolleys usually have one wheel on each side of the



Tracks and trolleys used in connection with heavy wire mesh baskets for dipping small metal parts.

track. These trolleys are constructed in pairs of wheels. Where two pairs of wheels are used, each set is supplied with swivel joints to permit them to make curves with no danger of binding or breaking. Some manufacturers of overhead carriers even supply each wheel with individual roller bearings to make them easier to move.

Bumpers are provided at front and rear of each trolley, so that one man can easily push a group of trolleys at one time. Some carriers consist of long bars, each of which has trolleys at or near



Showing sections of tracks and trolleys from which metal parts are suspended so they can be dipped.

both ends. Hooks are properly spaced along the underside of the bar.

The trolley tracks are supported by hangers which are adjustable so that a perfectly level track can be put up under uneven floor joists or an uneven ceiling.

Wherever installed the overhead carrier system has brought into the plant a more orderly state of affairs than could have been introduced by any other method. Material is kept clear of the floor and it moves along a certain prescribed line. Tracks may extend from one building to another. It requires only a signal between two workers to indicate that a train is coming over and they are ready to direct it. It is possible in many instances to push a continuous string of trolleys that extend 150-ft. in length on a straight line. It is much easier to work with overhead carriers than to push trucks and handle the materials over and over again. Touching up of painted surfaces can be done while the pieces are still on the carrier.

Such added devices as two-way switches, cross-over switches and three-way switches, as well as turn-tables, make for greater speed in production. Wherever the painting or finishing of wood or metal parts is part of the manufacturing process, there is a possibility of using this method of conveying materials from one operation to another, with the maximum saving of time and effort.—R. J. Waldo.

New Pyroxlin Concern.

Charles Fawkes, formerly connected with the Miner Laboratories, is at the head of the Pyroxlin Products, Inc., a new Chicago company that will manufacture lacquers and solvents. The concern has leased space at 5301 West 65th Street for factory purposes.

New Glass and Paint Concerns.

The Wilmette Glass & Paint Works, 1133 Central Ave., Wilmette, Ill., has been incorporated with a capital of $10,000 to manufacture and deal in glass and paints. The incorporators are Wm. and Robert Rossberger and David Oliver.

The Tabernacle Baptist Church building, located at 1821-23 Charlotte Street, Kansas City, Mo., is to be converted into a paint factory by the Surface Paint & Glass Co. of that city. E. E. Surface, of that company, recently purchased the property and as soon as the building can be remodeled and equipped the manufacture of paint will be started.

YOU CAN DEPEND ON THE NEWCOMB

THE NEWCOMB SYPHON VENTILATED CABINET

embodies features suggested by our years of experience which appeal to every practical factory man and executive.

One of our latest and best developments is the fan with direct connected motor, independent of booth, with rear of booth fitted with Reclaiming Chamber and Baffle Doors.

Wherever spraying or airbrushing is done with shellac, paint, stain, enamel, lacquer, or varnish, this installation will effect an appreciable saving in operating costs, make impossible clogging of the fan and

ELIMINATE A FIRE RISK

Whatever your spraying problems may be, we can help you materially in solving them promptly, economically and SAFELY.

The Newcomb cabinet meets all requirements of Fire Underwriters

Grand Rapids Blow Pipe and Dust Arrester Co.

Dust Collecting Systems **527 Monroe Ave.** **Grand Rapids, Michigan**

GLIDDEN
LACQUEROID
SYSTEM

What Will They Want Tomorrow?

THE GLIDDEN COMPANY
National Headquarters
CLEVELAND, OHIO

GLIDDEN
LACQUEROID SYSTEM

No 35
WOOD LACQUER
The Finest Lacquer Made

The finisher must know his job. Each year, each month, each day brings new demands upon your department. Competition doesn't stand still. Neither can you. The steady demand for something new in stain or color effects must be met.

But it's not your problem alone. You can depend upon outside sources for your finishing materials. And the results you get depend to a large extent upon the finishing materials you employ.

And here's where Glidden men can serve you. They can bring a "complete department of service" to your assistance. They are equipped to develop materials that will help you carry out your ideas. Their years of experience are yours for the asking—and remember that such a request involves no obligation. Why not ask your company to write us today?

THE GLIDDEN COMPANY
National Headquarters
CLEVELAND, OHIO

FOR BETTER
—AND—
FASTER WORK

⅛ - 3 hp
1-16 cu. ft.

How About That Rush Job?

Those rush jobs that must be pushed through during a slack period in your paint shop most forcibly illustrate Kellogg Economy.

Under the central source system, the operating cost of one nozzle is about as great as for a dozen. With the Kellogg system costs drop with every idle line. This fact, together with Kellogg flexibility, makes it an economy to scrap an installed central source system in favor of a Kellogg battery.

Our quarter century experience in air problems is at your service.

KELLOGG MANUFACTURING CO.
ROCHESTER, N. Y.

Finish for Insides of Drawers.

The quality of furniture made today is such that some attention is given to the finish on the inside, as well as that on the outside. There was a time when the insides of drawers of even the better grades of furniture would pass in the bare wood, but today, all furniture making any pretentions to quality must have the insides of drawers finished. The problem is to have a finish that is at once cheap and good. There are some varnishes on the market made specially for drawer finishing, but most of these are too expensive except for the very highest class of furniture, and some of the cheaper grades do not make a good finish.

On some of the higher class furniture the insides of the drawers are varnished and rubbed sufficiently to remove the gloss, but this takes time, and time costs money. Some twenty years ago the writer did some experimenting to get a good drawer finish that would not be expensive. We always stain the insides of case goods, but they are a good deal lighter in color than are the outsides. The insides are stained, then given a good coat of heavy shellac, about 4½ lbs. to the gallon of spirit solvent. This coat of shellac is sanded, then finished off with a coat of the following:

Heat ten gallons of water to a temperature of 175-degs. F., and dissolve in it 4-lbs. of powdered borax. Then pour into it 20-lbs. of orange shellac gum in flakes. Pour in the flakes slowly and stir continually until the shellac is dissolved. When cold it is ready for use. Apply with a brush, with as little brushing as possible to prevent frothing. When applied over spirit shellac it dries with a satin finish, and is smooth and velvety to the touch.

To get the best results, this finishing coat ought not be applied until after the goods have been rubbed, especially if the goods are water rubbed. It will not stand soaking in water—in fact no shellac coat will withstand water. A good many concerns are using this finish today on their best furniture, for the insides and backs.—L. J. B.

If "it improves with age" that ought to be a pretty good recommendation, provided "it" is O. K. at first.

Since the introduction of nitrocellulose finishes the business of coining new trade names has been especially brisk.

The Importance of Accuracy.

As nearly all wood finishers prefer to prepare their stains from powders rather than to buy liquids, which may evaporate, freeze, thicken, leak or otherwise deteriorate, it is most important they should have scales and measures for accuracy.

A cupful from one lot of powder may not weigh the same as a cupful from another lot of the same powder. Stain powders should be weighed and not measured by bulk.

Lockwood Stain Powders and dyes are always uniform in quality, and give the same results at all times if accurately prepared.

Their booklet of dyes and stains ought to be in the hands of every foreman finisher, and can be obtained by writing to 314 W. 14th St., New York.—Advertisement.

Industrial Finishing

PRACTICAL PUBLICATIONS, Inc.
Publishers.
210 Holliday Building
Indianapolis, Ind.

Issued monthly. Distributed exclusively to executives and foremen finishers in all kinds of industrial plants where finish coats are applied.

MAY, 1925

Better Quality—Better Appearance

The automobile has become such an important factor in modern life, and the automotive industry such a leader with its progressive ideas and methods that what occurs in this field is watched with keen interest by manufacturers in other lines. The automotive industry is noted for its superior production methods and the various means it employs to stimulate buying. Nothing is overlooked that will promote sales and give more permanent satisfaction to motorists. Satisfied buyers are always splendid advertisers. The entire policy regarding design, color, production and sales is shaped accordingly.

It is interesting therefore to note that the president-general manager of one of the large automobile manufacturing concerns says: "The automobile has passed through two stages—the development stage and the production stage, and now it is about to enter into what might be called the refinement stage." He emphasizes the point that motor car manufacturers are now directing their efforts toward building more quality, more durability and more beauty into their cars. "Greater production in the factories has made greater quality not only a possibility, but a necessity," he declares.

There is good reason to believe that other manufacturers of painted or finished products, designed to be ornamental as well as useful, will do well to consider the advisability of shaping their policy along similar lines. A lot of effort and expense has been directed toward increasing production during the past few years. Volume production has been obtained and manufacturing costs have been reduced. Of course, there is now, and we hope always will be room for more improvement in this direction.

However, right now it appears that, in many industries, the demand for increased production has subsided somewhat in favor of a demand for something better in the way of more durability, more convenience and more beauty. Here, incidentally, is an opportunity for a more intelligent use of better finishes and more attractive color schemes. When this building in of more quality and refinement occurs, the products will have a new and commanding appeal for buyers, and as a result there will be less resistance to overcome in making sales.

Volume of Production in Paints and Finishes.

It is interesting to note to what figures the production of paints, varnishes, japans and lacquers mounted in the U. S. during a period of six months. According to data collected at the latest semi-annual canvas of paint and varnish manufacturers by the

Department of Commerce, statistics based on returns from 510 establishments show there were produced in the last six months of 1924 nearly 234,000,000 pounds of paste paints, more than 43,000,000 gallons of ready mixed and semi-paste paints, over 32,000,000 gallons of varnishes, japans and lacquers other than pyroxylin, and more than 2,000,000 gallons of pyroxylin (nitrocellulose) finishes.

Compared with the first half of the same year (1924) this represents an average decrease of about 6½ per cent. in paints, varnishes and japans, but an increase of 51 per cent. in pyroxylin finishes. The first half of 1924, as compared with the last half of 1923, however, shows increases of 32.1, 17.7 and 5.7 per cent. respectively for paste paints, mixed and semi-paste paints, and varnishes, japans and lacquers other than pyroxylin. Pyroxylin finishes were first reported in these statistics in 1924.

Comparison of the last half of 1924 with the last half of 1923 brings out increases of 21.8 per cent. and 12½ per cent., respectively for paste paints and ready mixed and semi-paste paints, and a decrease of 2.2 per cent. for varnishes, japans and lacquers other than pyroxylin.

Exposition of Chemical Industries

The growing importance of the chemical industry to the economic and industrial life of the nation will be emphasized at the Tenth Exposition of Chemical Industries to be held during the week of Sept. 28th-Oct. 3, 1925, at the Grand Central Palace, New York City. Plans are already under way to have this Exposition embody the essential features of the present status of the industry. The latest developments in production methods, the most efficient equipment as well as the fundamentals of the industry are to be there for inspection, as incentives to progressive manufacturers for thoughts and new ideas on the manufacture of the raw materials into finished products.

Applied chemistry and engineering, in view of improving the quality, increasing the production and lowering the cost to meet competition, will constitute one of the dominant notes at the Exposition. Great efforts are being made to improve and enlarge its scope by making it a truly representative display place for products of the American chemical industry, which of course includes all kinds of finishing materials. The idea is to create public confidence and good will for the national industry, which is essentially the keynote of the Exposition, and to foster constructive business relations between the producers and consumers.

At first a small collection of what 83 exhibitors could show in 1915 of American Chemical Industries, this national exposition has grown to be the most convenient and representative show place of the steadily increasing chemicals and chemical equipment industries. The exhibits of more than 400 exhibitors at the Ninth National Exposition of Chemical Industries, besides illustrating the sound foundations of the American chemical industries gave an insight into the wealth of the indigeneous raw materials needed by the industry. It has embodied manifest proofs of the importance of the Exposition as a testimonial to the great prog-

ress in production and quality of American chemicals and chemical equipment, as an educational institution, as the most stimulating factor for creating business relations between producers and consumers, and as the best medium of gaining good will for our national industries.

Reducing Primers for Dipping Process.

When a white or colored undercoat, first coater or primer is reduced to a dipping consistency, the tendency of the oils to oxidize through contact with the air is greater than in the unreduced state.

These oxidized oils become insoluble and fall out of solution. The pigments fall to the bottom of the container and the gummy, oxidized oils settle on top of the pigments. The "thinners" are left on top. Material, in this condition, can not be remixed so that it can be applied properly; it will remain lumpy and will not lay on smoothly.

The tendency to oxidize cannot be avoided in an open or partly filled tank. Its effects can be minimized by making sure that the dip tank, when not in use, is covered tight with very little air space between the cover and the surface of the enamel. Where it is possible, it is preferable to draw off the contents of the dip tank into smaller containers. These containers should be filled to leave a minimum air space.

Because of quick setting (and because of low cost), gasoline and benzine are preferred as reducers by people who apply their enamels by dipping. Neither of these volatile thinners are as good solvents for oxidized oil as turpentine; for this reason, it is desirable that turpentine be used frequently as part of the reducing liquid in order to counteract the oxidizing tendency of the oils.

It is a good practice to reduce with half gasoline and half turpentine, or half benzine and half turpentine.

When dip tanks are in constant use, the material is consumed quickly and there is little danger of oxidizing. This trouble comes where the dip tank stands idle from day to day because of lack of work to keep it busy.—*The Hilo World*, Hilo Varnish Corp.

Effects of Temperature.

The varnish stock should be kept in at even temperature, ranging from 65° to 75° F. The degree of humidity should be low. The temperature of a varnishing room should be about 75° F. This temperature makes the working of varnish easy and induces drying that will be more uniform, drying more from the inside out, rather than from the outside in.

A high degree of heat has the effect of drying the surface of the varnish at once, and this prevents the under portion from drying as quickly as it otherwise would. Some finishers advise as high a temperature as 110° F., but it would cause the undry varnish to flow out and form sags or curtains on work standing in a vertical position. Do not allow the varnish to become chilled, either in the can or on the work. The shop should be warm, night and day.—Amums.

Hommel Co. To Build.

The O. Hommel Co. of Pittsburgh will erect a plant for the manufacture of gold bronze paint and enamels at Pulaski, about 15 miles north of New Castle, Pa. The company formerly operated a plant at Carnegie, Pa.

Breakfast Room Furniture Finishes

Describing in detail four different methods of finishing breakfast room furniture according to the price and grade of the suite

By R. F. Macmillan

BREAKFAST room suites continue popular with the buying public and a variety of grades are being turned out to fit every purse. The finish, of course, depends on the grade. A description of four representative methods follows:

Method No. 1

(For very cheap suites.)

Apply one coat of flat undercoater tinted to the shade of the enamel. When dry, sand smooth and apply a coat of enamel made to dry in an eggshell or semi-gloss lustre. When this is dry, stripe or apply stencil decorations, using japan colors; by mixing these in rubbing varnish a lustre approximating that of the enamel is produced and the job is finished.

Method No. 2

(For cheap suites.)

Same as above, except that turpentine alone is used in mixing the japan color; the rubbing varnish is omitted entirely. A coat of flat varnish is then applied over the entire piece, which gives a slight antique effect that is desirable in itself and also serves to protect the decoration.

Method No. 3

(For medium-priced suites.)

Same as above, except that an additional coat of undercoater, or enamel, or half and half, is applied as a second coat, making a three-coat job in all.

Method No. 4

(For high-grade suites.)

Apply two or three coats of flat enamel, i. e., high-grade

An artistic suite of breakfast room furniture.

enamel undercoater, tinted. Two coats are employed where the wood is close-grained and hard; three where it is open pored or soft, with careful sanding after each. Shade, if desired, with a spray gun and protect the entire piece with a thin coat of white or orange shellac according to the color of the enamel. Sand smooth, hand decorate if this is required and finish with a coat of high-grade pale rubbing varnish lightly rubbed with FFF pumice stone in oil.

Points to Remember.

Where a varnish protective coat is applied over all, allowance must be made for the fact that the enamel color will be slightly darkened; the enamel should be chosen with this in mind.

Where soft woods, such as gum, basswood, poplar, etc., are used, the undercoater should be given an additional proportion of boiled oil to allow for the extra suction that will take place. If the wood is hard, like birch or maple, the addition of a little turpentine to the undercoater will increase penetration and insure a firmer anchorage.

After the first primer coat, examine the surface for holes, and patch these smooth with water putty before sanding. Make absolutely certain that all undercoats are dry before succeeding coats are applied, otherwise cracking and checking are certain to follow and spoil the entire job.

If undercoater and enamel are applied by hand, be sure that a soft oxhair or badger brush is used, as this will cut down the amount of sanding necessary and make for a smoother surface. Also be sure that the brushes are clean and worked free from loose hairs, and that all work is done in a dust-free room.

Characteristics of Good Varnish.

Varnish of good quality should remain brilliant after evaporation of the medium in which it was mixed. It should present a hard, dry surface, instead of a soft or tarnished surface. It should adhere closely to the surface to which it has been applied. It should not scale after it becomes dry, no matter how long a time.

Linseed oil varnish should be clear and show no turbidity nor have any solid or flocculent matter floating in it. Allowing it to rest two weeks in a moderately warm place should clarify it; if it contains some rosin it will not do so.

A very slight amount of sediment may be looked for in the best varnish, the amount not to be above one-fourth of one per cent after standing several months. Inferior varnish will often show as much as seven percent, it being imperfectly clarified.—Ash.

Finishing Kiddie Cars.

Two methods of finishing are employed by a leading manufacturer who turns out two grades of toy cars, one cheaper and the other of a more expensive type. The wood used in each case is white, Georgia or Idaho pine, and each kiddie car is made up in four sections: (1) seat (2) handle bar and front axle fork (3) back axle frame (4) 3 wheels, rubber tired.

The method for the cheaper grade is to hand dip each piece in coach varnish and let dry overnight in racks. The wheels are dipped in red or blue enamel. The seats are stenciled with the company name and trade mark in

PEERLESS SYSTEMS

SATISFACTORY finishes can only be produced with properly designed spray equipment. The PEERLESS SYSTEMS has established an unparalleled reputation for not only speed and economy of operation, but also an unequaled quality of finishes.

The PEERLESS SYSTEMS consists of the most up-to-date equipment, designed from a practical standpoint, both as to the application of the materials and the economy of operation.

Complete information will be furnished upon request.

Write for Literature

Peerless Excel XL

New Bulletin No. 25

PEERLESS PNEUMATIC SYSTEMS, Inc.

Manufacturers of Complete Spray Finishing and Painting Equipment

118 North Jefferson Street **CHICAGO, ILL.**

BINKS

for the
SPRAY FINISHING
department—

Each 'BINKS' unit,

Spray Guns
Material Containers
Oil and Water Extractors
Pressure Regulators
Spray Booths
Exhausting Equipment
Compressor Outfits

for all product finishing with Lacquers—Varnishes—Shellacs—Enamels and coating materials for painting requirements is a product of **Engineering Perfection.**

They are installed in the worlds largest automobile, furniture and enameling plants today where the highest quality of product finishing and production cost—**Counts.**

Investigate or write us

BINKS SPRAY EQUIPMENT CO.
3121 Carroll Avenue
CHICAGO

white or red, and when tires are stretched on to the wheels, the kiddie car is assembled for packing. The entire operation is completed in one and one-half days.

The finishing method for the higher grade car consists of spraying one coat of ivory primer on all pieces except the wheels. Overnight drying in racks is followed by a light sanding and, when dusted, the pieces are sprayed with one coat ivory gloss enamel. In the meantime the wheels are dipped in red or blue gloss enamel. These and other pieces are then force dried for 12 hours by placing them between steam radiators.

The steam is shut off at 5 o'clock but drying has been given such an impetus that with natural drying the pieces are hard dry in the morning. The seats are then stenciled in white or yellow with japan color and given an hour or two to dry prior to packing. The kiddie car is then assembled except for handle bars and front axle fork (one piece) and shipped flat. The entire finishing operation under this method requires two days.—C. L. Ravenmoss.

A Venetian Finish.

This is an enamel finish produced after the manner of antique originals turned out in Northern Italy during the 18th and 19th centuries, on pieces following Louis XVI closely in point of design. It is most popular on bedroom suites, particularly where the cabinet pieces have swelled or bowed fronts.

The wood is first given two coats of finely-ground flat enamel tinted an ivory shade, each coat being allowed at least eight hours to dry, then surfaced smooth with No. 00,000 or 000,000 sandpaper.

Over the last coat is brushed a fairly thin mixture of equal parts "drop black" and "burn umber" in japan. While still wet this coating is stippled by hand, with a roll or wad of clean waste moistened with benzine. On borders the waste is kept dry in order to produce a darker effect.

The japan colors are applied with a 2½-in. brush and are reduced with equal parts turpentine and boiled oil, the latter to prevent too quick setting. The proportions for the mixture are about two teaspoonfuls of the combined japan colors to a quart of the turpentine and oil.

When hard dry, a coat of shellac followed by medium bodied clear flat lacquer is sprayed on and the finish is complete. If desired, floral decorations may be applied to drawer fronts and bed panels by hand or with decalcomania transfers. Striping with gold or green is occasionally practised just prior to the japan color glaze stipple coat.—C. R. Wills.

Poisonous Air Eliminated.

Until the introduction of the exhauster system of removing vitiated air from paint shops and finishing departments, the workmen in spray rooms literally breathed, swallowed, and absorbed fine particles of paint, shellac and varnish throughout every working day of the year. The air of the spray rooms was filled with tiny, swirling particles of paint and various kinds of finish which found their way through all protecting clothing, and even filled the pores of the workmen's bodies.

It is true that the spraying process has brought about huge savings in production costs, yet the labor turnover in spray rooms became enormous for a time, because of the discomfort to workmen and the dangers and liability of occupational diseases.

The exhauster fan systems have completely changed these early conditions. Now, the huge fans draw this paint-laden air away from the work, keeping the air purer and cleaner for the workers. In this way the modern fan exhaust systems have made conditions so much better that the labor turnover question has been substantially reduced.—R. J. W.

National Lead Co. Booklets.

As a part of its advertising service to dealers the National Lead Co.'s advertising department has put out two new and interesting booklets. One is on white lead paint and how to mix and color it to the desired tint of any color for interior and exterior use. The booklet gives complete formulas for mixing gloss and flat paints in all colors and tints.

The other booklet is a children's paint book containing both colored and uncolored pictures with a card of water colors for the little ones to use in coloring the uncolored portion of the book which illustrates nursery stories with which they are familiar. Attached is a booklet for the parents.

The Revival of Maple.

The prevailing popularity of Early American furniture has restored maple as a leading cabinet wood.

When used alone, or in combination with other woods, the only satisfactory way to color the wood is with a water stain. For antique effects, lacquer gives the most suitable finish over the stain.

Lockwood's No. 141 Golden Amber Shade produces very attractive effects on maple, and foreman finishers wishing to try it should write to 314 W. 14th St., New York, for a sample.—Advertisement.

Staining a Patch To Match.

One of the most difficult tasks confronting a finisher is that of staining a patch so that it will not look like what it is—a patch. There are patches which no man can stain in such a way that they can not be detected. For instance, a piece of oak has been stained with an oil stain, and has been filled and varnished. A patch of varnish is scraped away to repair a defect in the wood. The varnish may be sanded to a feather-edge. It is stained, filled and varnished again, and rubbed perfectly smooth—but the patch shows. The stain takes hold of the varnish along the edge and makes it dark, creating a border around the patch. Then again, the wood where the varnish had been scraped away may not have been sanded to the same degree of fineness as formerly, and in consequence the stain would take differently. In such cases there is only one thing to do, and that is scrape the whole surface and refinish.

There are some kinds of patches which can be easily stained to defy detection. Suppose, for example, a defect in a table top is discovered just after the stain has been applied. The wood is walnut or mahogany stained with water stain. The defect is repaired; and the stain for several inches has been sandpapered away. To stain this patch to match the surrounding surface, proceed as follows:

Stain the patch with the ordinary stain, but apply two coats to make it a little darker than usual. Take a small quantity of the regular stain and reduce it to half its regular strength, that is half stain and half water. When the stain on the patch is dry, coat the whole surface with this reduced stain. This will lift the surplus stain on the patch and distribute it over the whole surface in such a way that the patch can not be detected so far as the staining is concerned.—Harry B. Girth.

Pitting on Piano Varnish.

Make a hard wax polish with ½-oz. of Carnauba wax, 2-oz. of Japan wax or white beeswax, and 2-oz. of seresin wax melt all together on a water bath. When melted add a little kerosene oil, just enough to form a compound like vaseline; if upon cooling it is too hard, add a little more kerosene. Apply this with a woolen pad, with as many applications as will fill the pits.—J. A. Pitner.

Federal Proceeding Against Advance Paint Co. Dismissed

At a regular session of the Federal Trade Commission, Washington, D. C., on April 27, 1925, the following report of action was made:

"The Commission having fully considered the record and being now fully advised in the premises, and it appearing that the respondent was charged with using unfair methods of competition in commerce in violation of the provisions of Sec. 5 of the Act approved Sept. 26, 1914 (38 Stat. 719) in that it manufactured and sold in interstate commerce a certain wood varnish, composed wholly of gums other than genuine shellac gum, labelled, described and advertised as "Improved O'Shelac;" it further appearing that the product so manufactured and sold by respondent as "Improved O'Shelac" is sold only to manufacturers of furniture to be used as a foundation coat on which the actual outer finish is to be applied, said purchasing manufacturers not being in any wise deceived but, on the contrary, understanding fully that said product is not composed of genuine shellac gum; and it further appearing that said product does not reach any part of the public save the manufacturers of furniture who understand fully that it is not composed of genuine shellac gum;

"It is ordered, in consideration of the foregoing, that this proceeding be, and the same is hereby dismissed, upon the ground that there has been no deception, and that no public interest is involved."

Slow down the clock in Your finishing room

If you use the old hand and brush method your finishing room clock is ticking an hour away every 15 minutes. These are not guess figures, but have been proven time and again. With Paasche Air Finishing Equipment increases as high as 400% in finishing room production are established facts.

There is no element of chance when you install Paasche Outfits in your finishing room—the savings are inevitable. Get complete information from our Engineering Service Department, without any obligation whatsoever.

Paasche

PAASCHE AIR BRUSH COMPANY

1921 Diversey Parkway—CHICAGO

New York Cleveland Detroit Los Angeles

1816 CHEMICALS 1925

"Over a Century of Service and Progress"

BUTYL PROPIONATE

The New Nitrocellulose Solvent

IT WILL INSURE:

Greater Covering Power — Higher Gloss
Slightly Slower Drying — Less trouble with blushing

It will pay you to investigate the properties of this material

Manufactured by the Wilbur White Chemical Co.

Sole Selling Agents

INNIS, SPEIDEN & CO.

INCORPORATED

48 CLIFF STREET NEW YORK

Your Finishing Problems Solved by A Nationally Known Authority!

A Laboratory that Annually Betters and Develops Hundreds of

Furniture Finishing Formulas
Standardizes Processes and
Analyzes and Tests Raw Materials

Expert and highly specialized chemists trained for commercial research and analysis, particularly in the furniture finishing field, make up the staff of the Industrial Laboratories, Inc. We have created and developed formulas and processes that have made our client's products unique and distinctive. We have materially cut the finishing costs of manufacturers, as well as improving the quality of the finish by improving processes and formulas.

Write Today for Complete Information concerning our membership plan by which you avail yourself of the complete resources of this Laboratory at a most nominal fee.

INDUSTRIAL LABORATORIES, Inc.

ANALYTICAL, CONSULTING AND RESEARCH CHEMISTS,
CHEMICAL ENGINEERS

Walter K. Schmidt, Pres. Bert A. Way, Vice Pres. Elmer F. Way, Sec'y. Treas.
GRAND RAPIDS, MICHIGAN

Questions and Answers

This service department is conducted to meet the readers' need for prompt information on specific problems, and to give others an opportunity to review the questions and to offer comments, suggestions or answers

Applying Aluminum Powder?

Will someone kindly advise how aluminum powder can be applied to metal without having it rub off on the fingers or lose its bright appearance?—R. S. M.

Removing Baked Enamel?

We are looking for an acid or chemical of some kind that we can use quickly and cheaply in removing enamel from old fenders, hoods, etc. The usual enamel remover is too expensive. Our idea is to have a vat in which the parts can be immersed for an hour or so, and then come out entirely free of all enamel.—M. B. Co.

A Problem In Furniture Frame Finishing.

When finishing the base moulding of overstuffed furniture frames, what materials are used and how are they applied to produce a gray effect, the color of rotten stone, in the cove cuts in the moulding? We make these cove cuts in flat moulding, and as there is no chance to bring out effect in high-lighting it, we wish to color the cove cuts. We have seen several samples of this work and would be pleased to learn the best way to do it.—S. F. Co.

In reference to the above question, if we understand you correctly, it is a case of obtaining a lighter color by the process known as smutting. This is done by mixing 4-oz. of rotten-stone into a half gallon of liquid wax and rubbing this over the surface of the finished work. This action deposits the rotten-stone in the crevices, and when the surface is wiped clean the rotten-stone is not removed by the process, but gives it the light color which is in contrast with the general finishing color. This pigment can be made of any sort of color. On very light finishes, a dark pigment, such as Vandyke brown, is often used.—Industrial Laboratories, Inc.

Questions About Shellac.

1—What is the meaning of D. C. and V. S. O. as used in grading shellac, also how will it compare with Super or Superfine shellac?

2—Does T. N. Shellac make a shellac equal to the others after it is dissolved, and does it take the same amount to get the same results?

3—Can any of your readers tell me how to make the White Shellac Varnish. In every attempt I have made it does not appear to dissolve as it should but remains in little pellets and therefore gives lots of trouble. A much smoother article is that purchased at the stores. Why is this?

4—Can anyone give a formula for cementing leather permanently to iron? This should be able to withstand water and oil

and if subjected to great pressure would not cause a separation.—C. P.

Replies to above questions are as follows:

1—D. C. and V. S. O. are two trade mark names of two different brands of orange gum shellac produced in India. These manufacturers have been producing shellacs of a certain high standard for many years and they have called them D. C. and V. S. O. respectively. They are very light in color and generally come in large flakes, particularly as they are always packed in cases instead of bags. Genuine D. C. and V. S. O. have certificates enclosed in the cases and the buyer can thus assure himself of his receiving the real article and not an imitation thereof. They are of a higher grade than the variety which sells under the name of Superfine Shellac and generally cost anywhere from 10 to 20 cents a pound more.

2—TN Orange Shellac is the cheapest flake orange shellac that can be bought. It consequently is darker in color and contains more dirt and foreign material than any of the higher grades. As a result, it does not make as good a shellac, either in color or in quality, as shellac made from the higher grade gums. If it contains too much dirt and insoluble matter, naturally it will settle off or have to be strained out and the shellac solution will contain correspondingly less shellac.

3—There is no reason why anyone cannot make white shellac varnish which will dissolve as completely and will give just as smooth an article as that purchased at the stores provided the best grade of White Shellac Gum is bought. Bleached shellac is a perishable article and becomes insoluble in alcohol if allowed to stand around in the dry form too long.

Some bleached shellacs contain small amounts of insoluble matter even when freshly bought, so it is necessary to see that you are buying bleached shellac of the best manufacture and bleached shellac which is entirely soluble in alcohol. Bleached shellac should dissolve readily in alcohol in three to four hours with almost constant agitation, and when strained through several layers of cheese cloth should prove to have gone into complete solution so that practically nothing is caught in the cheese cloth strainer.

4—We know of nothing that will cement leather to iron better than a thick 8 or 10 lb. shellac solution. Shellac is quite waterproof, but whether it will withstand water and oil and great pressure without separation is something that we cannot answer without being more familiar with the conditions.—William Zinsser & Co., Inc.

Toning Light Parts of Walnut.

Many experienced wood finishers find the best and quickest method of coloring sap streaks in walnut, is to use a weak solution of alcohol stain to which a little shellac may be added if a binder is desired.

Lockwood's No. 65 Walnut Alcohol Stain Powder gives a fine effect, and can be coated with shellac, varnish or lacquer.

Foremen who wish to experiment, can get a sample by writing to 314 W. 14th St., New York. —Advertisement.

EGYPTIAN LACQUERS

The Ideal Finish

All Metals and Wood

Special Finishes for Automobiles and Furniture

Write for literature

The Egyptian Lacquer Mfg. Co.

90 West Street—NEW YORK

NEW No. 136

THREE VITAL QUESTIONS:

How will it improve your finish?
How will it hasten your output?
How much will it reduce costs?

If you will write us we will give you the benefit of our experience in industrial finishing problems.

The Thibaut & Walker Co.

MANUFACTURERS

Varnishes, Air Drying and Baking Enamels
Black Baking Japans

72-76 NINTH ST., LONG ISLAND CITY, N. Y.

Kindly mention INDUSTRIAL FINISHING when writing advertisers

FINISHES

ENAMELS LACQUERS VARNISHES

Are made in a Modern Plant Devoted to making Industrial Finishes only.

The Kay & Ess Company

Dayton, Ohio

The "Lithowhite" Brand

OF PURE SILEX

Made from pure, massive, crystalline, non-absorbent quartz, by the tub ground under water, floated, and precipitated processes.

Especially recommended for use in the manufacture of Wood Fillers, as a permanent base, and affording porosity to Paints.

"The World's Standard for Over 40 Years"

Sole Manufacturers

The Lithowhite Silex Company

NEW MILFORD, CONNECTICUT

Removes Printed Marks.

Referring to a question in a recent issue of INDUSTRIAL FINISHING regarding how to remove printer's dimension marks from sheet iron, we suggest trying a strong solution of Oakite and hot water, and rinsing off afterward. We have used this in many ways but not for exactly the purpose mentioned in the question.—Reed Mfg. Co.

Using Varnish Remover.

In April issue, R. B. F. asks how to get the best results with varnish remover. The main thing in using varnish remover is to let the remover do the work—not your scraping. Watch some workmen and you will see them go over a surface with remover, then begin to scrape and dig. This is wasted effort.

Apply your remover, then let it set and soak in until the varnish begins to blister and crumble up. Then you can take a knife and push it off without scraping and digging. If it is a turned surface, take a good stiff brush (one with a long handle) and scrub off the loosened finish. The secret is, as one manufacturer of a high-grade remover says, "wet and soak". It depends largely on the kind of remover, as some take longer than others.

If you are located where there is a spray machine you can do more rapid work by spraying the remover on the surface. After it has soaked good, blow off the loosened material with the duster or blower, and clean out the cracks and crevices with a knife. Avoid the use of benzole and acetone remover in connection with nitro-cellulose products, as it is practically impossible to wash the surface clean enough to prevent some of it coming through in spots after refinishing. A surface that has been cleaned should be washed with turpentine or alcohol; turpentine is best, because if any small places remain it will clean them off.—J. K. Cooper.

Finish for Ice Boxes.

Replying to N. S. F. Co. in April INDUSTRIAL FINISHING, the complaint mentioned is an old one that comes regularly from makers of refrigerators. A modern high-grade wood lacquer that resists heat, cold and moisture is what is now being employed generally. A waterproof shellac is only better in direct ratio of the amount of pyroxylin it may contain, and in a shellac mixture it is not a positive panacea. Alcohol of the shellac throws the pyroxylin out of solution. Spar varnish is too slow in drying for the purpose.—I. L. I.

Referring to N. S. F. Co.'s question in April issue, with reference to some application for the interior of the walls of ice boxes, would say that your difficulties have also been shared by the brewing industry where big stationary vats, for the storage of beer, are employed. These vats are in moist cellars, and to insulate the wood from the charge, they use shellac. After a few charges the shellac would disappear, and no scientific explanation could be found for this action.

We introduced to this trade a special pitch called "Durit" which is applied to the interior of the vats by brush. The practice proved that the lifetime of such a coating was practically unlim-

HEAT-A-KNIFE

Furniture Patchers like this Electric Furnace. DANGER PROOF. ECONOMICAL. No. 5 opening, 1 5-16" wide 5-16" high. Length of cylinder, 5". Knife may be inserted at either end. Adjustable knife rests and detachable cord and plug. Price $7.50, 110-120 Volts; $8.50, 220-240 Volts. F. O. B. Chicago. Wgt. 2 lbs.

No. 51 Larger Furnace—Opening 2¼"x¾". Length of cylinder, 7½". Price, $10.00, 110-120 Volts; $11.00, 220-240 Volts. F. O. B. Chicago. With Red Light Heat Indicator attached $2.00 extra. It saves current.

Furniture Patcher's Knives, $.55 ea.; Furniture Patching Cement Sticks, $1.75 per doz. Furniture Patching Transparent Sticks, $2.00 per doz.

BOBBETT ELECTRIC MFG. CO.
815 E. 43rd St. Chicago, Ill.
Tele. Oakland 1252

Bronze Powders

In Gold and Colors

All degrees of fineness and brilliancy

Special Bronzing Liquids

for use with the above

GERSTENDORFER BROS.

229 East 42d St. New York

*Also makers of Sapolin Enamel, air-drying, (white, ivory and colors)

ited, and the vats did neither shrink, warp nor absorb moisture. This material contains no high volatile oils. Heated up to 400 degs. F. without any danger of combustion, it penetrates into the wood, filling the pores and crevices, and will not interfere with the top finish, which can be applied soon after the pitch treatment.—Robert Rauh, Inc.

Finish For Tumbling Process.

In reply to C. H. & T. C., who asks in the March issue regarding finish that should be used for tumbling handles, we advise the use of material that is good and elastic so that the articles will not stick in the tumbler, and after baking that same can be broken apart without showing any marks. The secret of successful tumbling is to apply thin coats.—Republic Varnish Co.

Painting Machines.

The question in April issue reminds me that some years ago I had charge of a finishing room in a factory engaged in the manufacture of cheap furniture such as kitchen tables, wardrobes, etc. We used the graining machine or roll which produces imitation quartered oak. I never used this machine for any other purpose than graining but it seems plausible to me that it could be used for spreading shellac or other materials by simply substituting other materials for the ink that is used in the graining process.

This would only coat one side at a time but the pieces could be put in racks until dry, and then the other sides could be coated in a similar manner. A little adjusting of the apparatus, such as

loosening up the scrapers so as to let a more generous flow through, would be necessary, of course. The machine should be cleaned thoroughly after being used.—Roy L. Knall.

Old Air Hose Causes Trouble.

The customer of a well-known varnish manufacturer complained that the japan, when sprayed, showed small specks which caused pock marks. Investigation by the varnish manufacturer's salesman showed that an old air hose was being used. The lining of the hose was corroded and chipping off, thus causing specks to work into the japan. A new air hose remedied the trouble.

A pigment, such as is used in very high-grade enamel, is considered satisfactorily fine when it will pass through a screen of 320 mesh—102,400 holes to the square inch.

Indianapolis Plants Expand.

Substantial additions and betterments to the plants of three Indianapolis paint concerns are now under way, which will greatly enlarge the paint field in that city. A new office building costing $25,000 is to be added to the plant of the Advance Paint Co., a new addition costing $100,000 is being added to the plant of the Lilly Varnish Co., and the Finishing Products Co. is preparing to move into their new fireproof plant on the Belt railroad about May 1. Generally the Indianapolis paint and varnish companies report good business.

Goodrich Co. Enlarges.

The William O. Goodrich Co., Milwaukee, linseed oil manufacturers and refiners, has let contracts to build a new concrete grain elevator in connection with their linseed oil mill at Milwaukee. The new building will be a six-story, fireproof elevator and work house and will be equipped with new and improved flaxseed cleaning machinery.

WE SPECIALIZE
IN
ANILINE COLORS
FOR
WOOD STAINS

THEY ARE SOLD IN THE DRY POWDERED FORM. EACH COLOR CAN USUALLY BE USED WITH ONLY ONE SOLVENT.

THE BEST SOLVENTS ARE
WATER—
WOOD ALCOHOL—
BENZOL.

CENTRAL DYESTUFF & CHEMICAL CO.
ROANOKE AVE. NEWARK, N. J.

Made a Big Saving in Lacquer Room.

The foreman of a lacquer room is confronted with many problems, especially where colors are used. Owing to the fact that lacquer is an air-drying material and dries fast and very hard, there is sure to be a large wastage unless extra care is taken. In a room where a large number of special colors are used—a gallon of this and a gallon or so of that, maybe 25 or 50-gals. of color—this will amount to a large quantity of color that would be wasted with only a pint or so left in the cans and allowed to dry hard.

This possible waste can be eliminated by cleaning all cans with thinner and then placing this material in a container from which it can be drawn off and used for first coating work. The soiled thinner used for washing purposes can also be used for first coat work. By doing this it will mean the saving of a large quantity of thinner and lacquer in a year.

For some years I worked in a finishing room where I saw from 10 to 15-gals. of soiled thinner thrown out every week. Later I took charge of this room and used all of this for first coating. This made a saving of from 500 to 600-gals. of material a year in thinner. This, together with the colored lacquer that was saved, amounted to a substantial item for one department in a year.—J. K. Cooper.

Use

I-SIS

to

POLISH

METAL AND WOOD

LACQUER FINISHES

(Saves Time and Energy)
Send for Sample

I-SIS LABORATORIES, Inc.
1974 Broadway, New York

Shellacking Foundry Patterns.

It is general practice in some of the wood pattern shops to coat the better grades of patterns with two applications of shellac. Light colored or orange shellac is used on patterns for metals other than iron, and a blackened shellac is used to distinguish patterns for cast iron parts. The pattern maker mixes up his own shellac, using pure gum shellac and alcohol. Black shellac is made by adding one and one-half tablespoonfuls of lampblack to a quart of liquid shellac. Coatings of shellac are applied with a brush, a favorite size for small work being ½x1½-in. in cross section at the bristles.—W. H. R.

Colors for Refrigerator Cars.

For greatest efficiency, refrigerator cars should be painted in light colors. It is well known that white and certain light tints absorb fewer heat rays than dark colors. Consequently surfaces subject to sun heat and painted white, or a gray just off the white, remain several degrees cooler than similar surfaces painted a dark color.

Oil refiners have made a practical applicatjon of this truth in painting oil and gasoline storage tanks. By using white or light gray instead of the customary

WOOD FILLERS

Our Specialty Since 1887

YOU KNOW WHAT THAT MEANS—

Our ENTIRE Attention

WRITE FOR SAMPLES — NO OBLIGATION

KROEGER BROS.

Manufacturers

882 McKim St. Baltimore, Md.

USE "FILLERUB"

(a prepared vegetable fibre)

TO RUB DOWN FILLER COATS

Reduces rubbing time 25%.
Has long useful life.
Does not scratch.
Does not break up.
Does not litter the floor.
Gives a better finish.
Insures filling of smallest pores.

USED BY NATIONALLY-KNOWN MANUFACTURERS OF FURNITURE, PIANOS, REFRIGERATORS, ETC.

We are sending out free samples big enough for a real job. Fill in below and get a chance to try out this wonderful material.

OSCAR SMITH & SONS CO.

CLEARFIELD & C STS. PHILADELPHIA

Kindly send full particulars and free sample of FILLERUB at once.

Name .....

Address .....

.....

CLASSIFIED

Advertisements under this heading 45 cents a line, minimum charge $1.35. Use this department to obtain help, find positions, buy and sell equipment, dispose of manufacturing properties, etc.

WANTED

Lacquer salesman calling on chandalier and metal trades. Must have a following. Drawing and commission. Will furnish leads around New York. Out of town agencies considered. Address IF-112, care INDUSTRIAL FINISHING.

A JOB

Selling and demonstrating on the road for a well-known and established manufacturer is open to the right man. This man must have had experience with spraying methods and equipment and with paints and other finishing materials—he will be paid accordingly. ARE YOU THAT MAN and DO YOU WANT THIS JOB? In making application please give age and full extent of education and experience. Address IF-113, care INDUSTRIAL FINISHING.

WANTED

A man who has either practical selling or manufacturing experience or both in the merchandising of paint and varnish specialties to the machinery trade. Address reply stating past experience with qualifications to IF-114, care INDUSTRIAL FINISHING.

Whatever Your Question

Be it the pronunciation of **vitamin** or **marquisette** or **soviet**, the spelling of a puzzling word—the meaning of **overhead, novocaine,** etc., this **"Supreme Authority"**

Webster's New International Dictionary

contains an accurate, final answer. 407,000 words. 2700 pages. 6000 illustrations. Constantly improved and kept up to date. Copyright 1924. Regular and India Paper Editions. Write for specimen pages, prices, etc. **Cross Word Puzzle** workers should be equipped with the New International, for it is used as the authority by puzzle editors.

FREE Pocket Maps if you name this paper.

INDUSTRIAL FINISHING

G. & C. MERRIAM CO.
Springfield, Mass., U. S. A.

black they have cut down evaporation losses appreciably. In some instances, a temperature difference of as much as six degrees in the contents of two tanks has been recorded.

A similar reduction may be expected in the case of refrigerator cars when light colors are used. Here it is desirable to offset as much as possible the effect of atmospheric heat upon the ice and the perishable material contained in the car. The less heat absorbed by the exposed surface of the car, the longer the ice will last and the cooler will be the refrigerator compartment. Even a reduction of a few degrees will result in considerable saving on a long haul or where the car lies in a sunny yard for any length of time.

White is, of course, the poorest heat absorbent and the best for use on refrigerator cars. Light greens, blues, and grays come next in this respect. Deep yellows or orange, which are frequently used on cars of this type, absorb a great deal of heat and for this reason should not be used. The same applies to dark red and even to grays as dark as battleship gray.

All that has been said in reference to refrigerator cars applies as well to refrigerator ships. Here also colors as near white as practical should be used.—Dutch Boy Quarterly.

Blatz Co. Again Enlarges.

The Blatz Co., Louisville manufacturers of paints and varnishes, is planning additional improvement and enlargement of the plant, which has been materially enlarged over the past two or three years, but which needs further enlargement to take care of a rapid growth in business.

You Need CEL-O-FINISH

We offer you a complete system for your particular product, based not on laboratory theory but on the actual experience of one or more of our customers. In replying specify whether you desire instruction by mail or the services of a practical demonstrator.

CEL-O Lacquer Enamels

For automobiles, wooden and metal furniture, wicker ware, metal fixtures, broom handles, refrigerators, typewriters, toys, pumps, etc. A wide range of colors with undercoats and reducers for each.

CEL-O Crackle Lacquers

For breakfast room furniture, lamp stands, automobile bumpers, novelties and wicker furniture. A large choice of contrasting color schemes to choose from.

CEL-O Metal Lacquers

For automobile accessories, washing machines, bath and trunk fixtures, ornaments, reflectors, instruments, hardware, gold, silver and bronze ornaments.

CEL-O Wood Lacquers, Flat and Gloss

For bedroom, dining room and living room furniture, church furniture, phonographs, radio cabinets, refrigerators, pianos, school furniture, fixtures, etc.

All of our products are made in our own lacquer plant with every facility for turning out the best of each type. We will gladly finish samples.

ADAMS & ELTING CO.

1833 Seward Street
CHICAGO

ARCOZON, a pyroxylin lacquer, has fully justified our carefully weighed judgment of merit.

In it we have developed a satiny finish of slumbrous luster, that clings tenaciously and retains its beauty in the face of the most adverse weather conditions. Beating sun and dusty plains will not affect it. It stays on.

May we refer you to our technical department for details?

THE ARCO COMPANY, CLEVELAND, OHIO
Paints . Varnishes . Enamels (21)

SPRAYS ON
ARCOZON
STAYS ON

THE ARCO PYROXYLIN LACQUER SYSTEM